

## CLAIMS:

1. Symbol detection apparatus for detecting the symbol values of a two-dimensional channel data stream recorded on a record carrier, said channel data stream comprising a set of contiguous symbol strips (B) of symbol rows (r) one-dimensionally evolving along a first direction and being aligned with each other along a second direction,  
5 said two directions constituting a two-dimensional lattice of symbol positions, comprising:
  - a cross-talk cancellation unit (XTC) for cancellation of radial inter-symbol interference present in the first adjacent symbol rows ( $g_{01}, g_{02}; r_1, r_{N+2}$ ) of a symbol strip (B1) from the next but one adjacent symbol row ( $r_{b01}, r_{b02}; r_0, r_{N+3}$ ) of said symbol strip (B1) by applying for each first adjacent symbol row ( $g_{01}, g_{02}; r_1, r_{N+2}$ ) a cross-talk cancellation  
10 between a first adjacent symbol row ( $g_{01}, g_{02}; r_1, r_{N+2}$ ) and its neighboring symbol row ( $r_{b01}, r_{b02}; r_0, r_{N+3}$ ) not belonging to said symbol strip (B1), and
  - a 2D symbol detector (V) for symbol detection of the symbols of said symbol strip (B1) together with said first adjacent symbol rows ( $g_{01}, g_{02}; r_1, r_{N+2}$ ).  
15 2. Symbol detection apparatus as claimed in claim 1,  
wherein said first adjacent symbol rows are guard-band symbol rows ( $g_{01}, g_{02}$ ) separating contiguous symbol strips (B0, B1, B2).  
  
3. Symbol detection apparatus as claimed in claim 1,  
20 wherein said first adjacent symbol rows are the outer symbol rows ( $r_1, r_{N+2}$ ) of the two neighboring symbol strips (B0, B2) of said symbol strip (B1).  
  
4. Symbol detection apparatus as claimed in claim 1,  
wherein said 2D symbol detector (V) is a 2D PRML symbol detector, in particular a Viterbi  
25 detector, for iterative stripe-wise symbol detection of the symbols of a stripe (T), a stripe (T) comprising at least two neighboring symbol rows.  
  
5. Symbol detection apparatus as claimed in claim 1,

wherein said cross-talk cancellation unit (XTC) comprises an FIR filter unit (FIR) and an updating unit (LMS) for updating of the coefficients of said FIR filter.

6. Symbol detection method for detecting the symbol values of a two-

5 dimensional channel data stream recorded on a record carrier, said channel data stream comprising a set of contiguous symbol strips (B) of symbol rows (r) one-dimensionally evolving along a first direction and being aligned with each other along a second direction, said two directions constituting a two-dimensional lattice of symbol positions, comprising the steps of:

10 - cancellation of radial inter-symbol interference present in the first adjacent symbol rows ( $g_{01}, g_{02}; r_1, r_{N+2}$ ) of a symbol strip (B1) from the next but one adjacent symbol row ( $r_{b01}, r_{b02}; r_0, r_{N+3}$ ) of said symbol strip (B1) by applying for each first adjacent symbol row ( $g_{01}, g_{02}; r_1, r_{N+2}$ ) a cross-talk cancellation between a first adjacent symbol row ( $g_{01}, g_{02}; r_1, r_{N+2}$ ) and its neighboring symbol row ( $r_{b01}, r_{b02}; r_0, r_{N+3}$ ) not belonging to said symbol strip

15 (B1), and

- symbol detection of the symbols of said symbol strip (B1) together with said first adjacent symbol rows ( $g_{01}, g_{02}; r_1, r_{N+2}$ ).  
by use of a 2D symbol detector (V).

20 7. Reproduction apparatus for reproduction of a user data stream from a two-dimensional channel data stream recorded on a record carrier, comprising a symbol detection apparatus as claimed in claim 1 for detecting the symbol values of said two-dimensional channel data stream.

25 8. Reproduction method for reproduction of a user data stream from a two-dimensional channel data stream recorded on a record carrier, comprising a symbol detection method as claimed in claim 6 for detecting the symbol values of said two-dimensional channel data stream.

30 9. Computer program comprising program code means for causing a computer to carry out the steps of the method as claimed in claims 6 or 8 when said computer program is run on a computer.